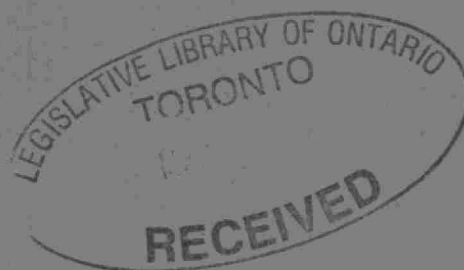
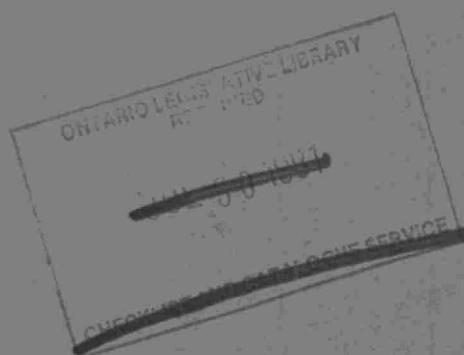


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NANTICOKE WATER CHEMISTRY 1975



Ontario

Ministry
of the
Environment

The Honourable
George A. Kerr, Q.C.,
Minister

Everett Biggs,
Deputy Minister

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NANTICOKE WATER CHEMISTRY 1975

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February 1977

SUMMARY

The purpose of this report is to record and analyze 1975 water chemistry data for the Nanticoke area of Lake Erie. The survey data are documented for 19 different water quality parameters with several main ones analyzed in detail. Also analyzed are changes which took place in water chemistry during 1969-1975 period. It was found that short-term variation of most of the parameters is larger than is the long-term change. The only significant changes were found for conductivity and turbidity. Conductivity has declined by 3.8 ± 0.9 $\mu\text{S}/\text{year}$, turbidity by 0.34 ± 0.30 FTU/year during the 1969-1975 period.

INTRODUCTION

Extensive biological, chemical and physical studies have been carried out at Nanticoke since 1969. The purpose of these studies is to detect water quality changes in the area. Water chemistry information for the period 1969 to 1974 is contained in Palmer (1970, 1971 and 1972), Polak and Kennedy (1975) and Polak (1975). This report presents the 1975 data and examines changes.

Survey Operation

As in previous years, nine sampling locations (Figure 1) were marked with spar buoys. However, due to construction, sampling at location 1008 ceased on August 20, 1975 and was replaced by location 1041 and 1042 where sampling commenced in May 1975. Locations 518, 1008, 1040 and 1042 were sampled at the mid-depth while all others were sampled one meter above bottom and one meter below the surface. In 1975, all locations were sampled eight times. Samples were analyzed by MOE's laboratory in Toronto by methods described in MOE (1975).

An automatic water quality monitoring station was operated in Nanticoke near station 1040 from May 28 to June 7, 1975. Five parameters: temperature, conductivity, pH, dissolved oxygen and redox potential were recorded every 30 minutes at depths 0.8 and 3.1 meters from the water surface.

ANALYSIS OF 1975 DATA

Summaries of the 1975 data classified by date are given in Tables 1 and 2, by station in Tables 3 to 4. Results of the surveys for individual parameters, stations and dates are given in Appendix I, Tables 1 to 19. Most of the parameters change little from station to station on a given date whereas the seasonal variation is significant at 0.95 confidence level (see Analysis of Variance, Table 5). These differences have persisted since 1969. The region is spatially homogeneous in water quality which has not changed since 1969.

A summary of the data recorded by the automatic water quality station are given in Table 6. The daily means and standard deviations were calculated from the individual values recorded every 30 minutes. The means of the individual parameters at the two depth levels were compared by t-test. It was found that temperature and dissolved oxygen means are not significantly different at the two depth levels, while redox potential, pH and conductivity at these two depth levels are significantly different. One reason for temperature not being significantly different is that from May 28 to June 3, the temperature at the deeper level was lower. On the following three days (June 4 to June 6) temperature inversion took place with the top layer becoming colder. This inversion caused a large

variation of temperature and consequent small values of t . The variability of the parameters of the two depths was also compared using an F-test. It was found that there is no significant difference at 95 percent level between the standard deviations at these two levels for temperature, dissolved oxygen, and redox potential. On the other hand, pH and conductivity have significantly different standard deviations for the two depths. The standard deviations at the upper level (0.8 meters) were always larger in magnitude. This implies that surface variations in general are larger than those at depth.

The records of the chemical parameters were also examined for periodicities by standard time series analysis. The few significant periods found in the records are listed in Table 7. No periodicities can be explained by free Lake Erie oscillations (Rockwell, 1966). Periodicities in the chemical parameters can be compared with periodicities of the water movement in the area (Kohli, 1976). Some common periodicities were found for temperature, pH and redox potential and east-west components of currents. No relations were found for the north-south components of the currents. It appears that along the shore (east-west) water movement is causing some of the short term variations in the water chemistry parameters.

CHANGES IN WATER CHEMISTRY 1969-75

As in 1974 (Polak 1975), the long-term records were analysed to find possible trends or changes in the water quality of the area. Simple regression analysis minimizing the error of estimate on one parameter at a time was used. Since longer records are available, changes should now be more easily recognized. The between year and location characteristics for each parameter were assessed employing a two-way analysis of variance with the results shown in Table 8. The differences between the years are significant, while the differences between the stations is significant only for conductivity and turbidity. Turbidity is known to be dependent on the water depth because in shallow waters more sediment is lifted from the bottom and resuspended. To test this dependence, turbidity data were divided into two groups - inshore stations: 994, 1008, 1016, 1040, 810, 518 and offshore stations: 501, 112, 648. For these two groups, the significance of the difference between the means for date was tested by t-test for each year. It was found that the difference was significant in 1972, 1973, 1974. For years 1969, 1971 and 1975, the difference was not significant at 95% level.

In a long term study such as this, an analysis of trends and year-to-year changes is possible. The trend analysis data are presented in Figures 2 to 6 where the means for all

sampling locations are plotted for the sampling day. As mentioned above, two-way analysis of variance shows that there is, overall, a significant difference between different years. This does not imply that there is a long term trend in all parameters, actually in most cases periodical up-and-down changes prevail. Conductivity and turbidity are the only parameters which have changed and where over-the-year trends can be quantified. Conductivity values, beside having seasonal variation, have been gradually declining since 1969 with the exception of the year 1972 when local increases took place. The means for individual dates were fitted by a straight line. The slope of this line has a value of $-3.8 \mu\text{S}/\text{year}$, the negative sign meaning that there was a decrease. Whether this trend will continue in the future is difficult to predict from the available data. The mean decline is shown in Figure 2 as a solid line. The broken lines are 95% confidence limits of the slope. Both limits are descending from zero. Similar, though not as significant, is a change of turbidity, as can be seen from Figure 3. No explanation is offered here for the decline in conductivity, but it is believed that the decline of turbidity is associated with a general increase of the water levels of Lake Erie during 1969-75. For the other parameters tested (as shown in Figures 4 to 6), the slope can reach both increasing and decreasing trends. The changes cannot be predicted from the available data and are not significantly different from zero.

The mean values of the five selected parameters and their changes are listed in Table 9, together with the 95% confidence limits. Again, the data sets were divided into nearshore and offshore stations and both sets tested together and separately. The significance of the differences of the mean values between the nearshore and offshore stations can be easily assessed by comparing both the differences and their limits. From comparison of calculated values given in Table 9 it seems that values of conductivity, turbidity, total P and total N are lower at the offshore stations. Only turbidity values do not overlap when the statistical limits are taken into account. This means that only turbidity shows significant difference between nearshore and offshore locations. The values of the mean changes over 1969 to 1975 are also listed in Table 9. Again, values with the limits are shown. Conductivity and turbidity (except nearshore station data) show significant declines over the years with a mean value of $-3.8 \mu\text{S}$ for conductivity and $-0.34 \text{ FTU}/\text{year}$ for turbidity. The changes in all other parameters are small and the range of values is larger than the change itself. It has been suggested in last year's report (Polak 1974) that longer data are required to determine the changes and trends more

explicitly. In the case of conductivity, not only the value of the change is slightly different ($-3.0 \mu\text{S}/\text{year}$ for 1969 to 1974 data in comparison with $-3.8 \mu\text{S}/\text{year}$ for 1969-75 record), but also the confidence limits are narrower for the longer data. For turbidity, the yearly change calculated for the 1969-74 record was not significantly different from zero. The longer, 1969-75 record shows that the turbidity has declined at an average rate of $-0.34 \text{ FTU}/\text{year}$, with 95% confidence limits of the slope of -0.04 and $0.64 \text{ FTU}/\text{year}$.

Seasonal Variation of Some of the Chemical and Physical Parameters

The mean monthly values for the period 1969-1975 were calculated and are shown in Figure 7. To facilitate a comparison between the properties expressed in different units, the dimensionless variable A_r defined as:

$$A_r = (A - A_{\min}) / (A_{\max} - A_{\min})$$

was introduced. The parameter A_r changes from 0 to 1.0. Zero value is reached at the minimum and 1 at the maximum points for the season. From Figure 7 it is evident that nutrients (P and N) after a brief increase in concentration at the early season (April-May) decrease to reach the minimum in August and September. This is followed by a gradual increase at the end of the season. The mid-season minimum is perhaps caused by nutrient uptake by phytoplankton and subsequent sedimentation during the peak production period. It is interesting to see that conductivity is changing in a similar manner. Some increase of conductivity during June and July is likely caused by runoffs as they follow the peak for the runoff flows (usually in April or May). Turbidity seems to follow similar patterns suggesting dependence on phytoplankton production and/or water levels.

CONCLUSION

The Nanticoke water quality survey program, continuing in 1975, further improved the possibility of recognition of the long-term trends in water quality in the area as well as determination of the variation and background concentration of individual parameters. Statistically significant changes took place for conductivity with a yearly decrease of $3.8 \pm 0.5 \mu\text{S}$ and turbidity decreasing by $0.34 \pm 0.30 \text{ FTU}/\text{year}$. For other parameters either the changes were not significantly different from zero or not enough information for rigorous testing was available. The latest data confirm that the water quality of the area is spatially homogeneous and fewer sampling locations could be used for regional water quality determinations. Seasonal changes of most of the tested variables (nutrients, turbidity and conductivity) seem to follow similar patterns with decrease in the first half of the season and increase after August.

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Table 1: Summary of Results, Mean Value per Date, 1975, Nanticoke Water Chemistry

Date		Temp °C	Cond µS	Turb FTU	NH ₃ N-mg/l	NO ₂ N-mg/l	NO ₃ N-mg/l	Phenols µg/l	Tot P mg/l	Diss P* mg/l	pH SU	Cl ⁻ mg/l	Tot Fe mg/l	Diss Solids mg/l	Tot Cd mg/l	Tot Cu mg/l	Tot Pb mg/l	Tot Ni mg/l	Tot Zn mg/l
Apr 29	A	6.5	295	2.2	0.005	0.003	0.161	-	0.012	0.002	8.3	22.0	0.10	192	-	-	-	-	-
	B	6.0	295	2.3	0.005	0.003	0.161	-	0.013	0.002	8.3	22.0	0.10	192	-	-	-	-	-
May 28	A	8.5	297	1.3	0.009	0.003	0.122	1.3	0.012	0.003	8.1	23.0	0.05	193	0.01	0.01	0.01	0.02	0.01
	B	6.8	295	1.6	0.011	0.003	0.140	1.4	0.014	0.005	8.1	22.9	0.09	192	0.01	0.03	0.01	0.02	0.03
Jul 9	A	22.3	296	1.4	0.020	0.004	0.140	1.4	0.011	0.002	8.5	22.7	0.11	192	0.01	0.01	0.01	0.02	0.01
	B	16.0	298	2.4	0.052	0.005	0.140	1.0	0.014	0.002	8.0	22.7	0.18	194	0.01	0.01	0.01	0.02	0.01
Aug 7	A	22.0	293	1.4	0.018	0.005	0.090	1.6	0.021	0.005	8.5	23.0	0.08	190	0.01	0.01	0.01	0.02	0.06
	B	21.7	294	2.2	0.008	0.004	0.093	1.3	0.035	0.003	8.5	23.0	0.19	190	0.01	0.01	0.01	0.02	0.07
Aug 20	A	21.6	291	1.3	0.021	0.005	0.052	1.0	0.009	0.003	8.4	22.0	0.24	190	0.01	0.02	0.01	0.02	0.01
	B	20.1	294	1.2	0.019	0.005	0.071	1.7	0.012	0.003	8.3	22.0	0.21	191	0.01	0.03	0.01	0.03	0.01
Sep 17	A	17.7	298	1.7	0.029	0.004	0.074	1.0	0.016	0.005	8.5	21.7	-	194	0.01	0.03	0.01	0.02	0.01
	B	17.2	299	1.4	0.033	0.003	0.060	1.0	0.014	0.003	8.5	21.6	-	194	0.01	0.03	0.01	0.02	0.01
Oct 22	A	12.3	304	2.2	0.014	0.003	0.115	1.0	0.013	0.003	8.2	21.5	0.17	198	0.01	0.01	0.01	0.01	0.01
	B	11.9	304	3.1	0.018	0.003	0.115	1.0	0.014	0.003	8.2	21.5	0.18	197	0.01	0.01	0.01	0.01	0.01
Nov 19	A	9.8	310	5.8	0.016	0.003	0.104	1.0	0.015	0.02	8.2	21.6	0.23	202	0.01	0.01	0.01	0.01	0.02
	B	9.8	311	6.8	0.018	0.003	0.110	1.0	0.013	0.02	8.2	21.6	0.27	202	0.01	0.02	0.01	0.01	0.03

A . . . surface sample

B . . . bottom sample

* . . . filtered reactive orthophosphate

Table 2: Summary of Results, Standard Deviation per Date, 1975, Nanticoke Water Chemistry

Date		Temp °C	Cond µS	Turb FTU	NH ₃ N-mg/l	NO ₂ N-mg/l	NO ₃ N-mg/l	Phenols µg/l	Tot P mg/l	Diss P* mg/l	pH SU	Cl ⁻ mg/l	Tot Fe mg/l	Diss Solids mg/l	Tot Cd mg/l	Tot Cu mg/l	Tot Pb mg/l	Tot Ni mg/l	Tot Zn mg/l
Apr 29	A	0.84	0.00	0.65	0.0000	0.0004	0.0265	-	0.0020	0.0010	0.05	0.00	0.051	0.00	-	-	-	-	-
	B	0.56	0.00	0.88	0.0000	0.0004	0.0282	-	0.0023	0.0011	0.05	0.00	0.049	0.00	-	-	-	-	-
May 28	A	1.73	4.08	0.26	0.0020	0.0006	0.0288	0.82	0.0070	0.0030	0.19	0.00	0.004	2.45	0.000	0.013	0.000	0.000	0.000
	B	0.52	7.07	0.25	0.0018	0.0027	0.0026	1.06	0.0067	0.0017	0.04	0.23	0.032	4.72	0.000	0.018	0.000	0.000	0.013
Jul 9	A	1.07	3.45	0.44	0.0177	0.0007	0.0026	0.78	0.0030	0.0015	0.21	0.26	0.050	2.07	0.000	0.000	0.003	0.000	0.007
	B	1.32	2.67	0.89	0.0143	0.0010	0.0026	0.00	0.0033	0.0007	0.09	0.26	0.091	1.60	0.000	0.000	0.003	0.000	0.003
Aug 7	A	0.44	2.67	0.54	0.0050	0.0004	0.0050	0.97	0.0074	0.0052	0.11	0.00	0.057	3.68	0.000	0.000	0.000	0.000	0.019
	B	0.21	1.89	1.48	0.0039	0.0012	0.0081	0.75	0.0321	0.0030	0.07	0.00	0.128	3.68	0.000	0.005	0.000	0.011	0.017
Aug 20	A	0.24	2.44	0.35	0.0044	0.0007	0.0162	0.00	0.0031	0.0013	0.05	0.00	0.184	1.46	0.000	0.020	0.000	0.000	0.000
	B	1.36	2.44	0.34	0.0055	0.0006	0.0275	1.49	0.0042	0.0017	0.21	0.00	0.102	1.46	0.000	0.029	0.000	0.024	0.003
Sep 17	A	0.92	5.67	0.62	0.0102	0.0010	0.0200	0.00	0.0066	0.0038	0.00	0.48	-	3.78	0.000	0.030	0.000	0.000	0.000
	B	0.39	8.86	0.51	0.0134	0.0009	0.0314	0.00	0.0070	0.0009	0.00	0.53	-	5.68	0.000	0.041	0.000	0.000	0.000
Oct 22	A	0.48	4.50	0.64	0.0047	0.0003	0.0119	0.00	0.0028	0.0009	0.07	0.00	0.053	3.13	0.000	0.000	0.000	0.000	0.000
	B	0.24	4.76	1.71	0.0075	0.0005	0.0119	0.00	0.0031	0.0009	0.22	0.00	0.098	2.51	0.000	0.000	0.000	0.000	0.000
Nov 19	A	0.75	0.00	1.50	0.0058	0.0027	0.0106	0.00	0.0032	0.0007	0.07	0.24	0.062	0.00	0.000	0.000	0.000	0.000	0.000
	B	0.84	1.89	3.84	0.0067	0.0007	0.0130	0.00	0.0013	0.0004	0.05	0.24	0.124	1.13	0.000	0.028	0.003	0.000	0.006

A . . . surface sample

B . . . bottom sample

* . . . filtered reactive orthophosphate

Table 3: Summary of Results, Mean Value per Station, 1975, Nanticoke Water Chemistry

Stn.		Temp °C	Cond µS	Turb FTU	NH ₃ N-mg/l	NO ₂ N-mg/l	NO ₃ N-mg/l	Phenols µg/l	Tot P mg/l	Diss P* mg/l	pH SU	Cl ⁻ mg/l	Tot Fe mg/l	Diss Solids mg/l	Tot Cd mg/l	Tot Cu mg/l	Tot Pb mg/l	Tot Ni mg/l	Tot Zn mg/l
112	A	15.0	298	2.2	0.014	0.004	0.104	1.3	0.011	0.002	8.4	22.2	0.18	192	0.01	0.01	0.01	0.02	0.02
	B	12.3	298	2.3	0.016	0.004	0.119	1.0	0.013	0.002	8.2	22.2	0.13	194	0.01	0.01	0.01	0.02	0.02
501	A	15.5	298	2.1	0.019	0.004	0.097	1.1	0.013	0.003	8.4	22.2	0.15	193	0.01	0.01	0.01	0.02	0.01
	B	11.6	299	2.5	0.023	0.005	0.132	1.0	0.013	0.002	8.2	22.1	0.20	195	0.01	0.01	0.01	0.02	0.02
518	A	14.9	301	2.7	0.017	0.004	0.104	1.1	0.015	0.002	8.3	22.3	0.15	196	0.01	0.03	0.01	0.03	0.03
648	A	14.9	297	2.1	0.013	0.004	0.093	1.3	0.015	0.004	8.4	22.3	0.11	193	0.01	0.01	0.01	0.02	0.02
	B	13.5	299	1.9	0.016	0.003	0.106	1.6	0.025	0.002	8.3	22.3	0.13	194	0.01	0.02	0.01	0.02	0.02
810	A	15.5	300	2.5	0.020	0.004	0.112	1.0	0.013	0.002	8.3	22.3	0.15	194	0.01	0.02	0.01	0.02	0.03
	B	14.3	298	2.8	0.022	0.004	0.118	1.6	0.018	0.003	8.3	22.2	0.17	194	0.01	0.01	0.01	0.03	0.02
994	A	14.8	298	1.9	0.016	0.004	0.101	1.3	0.015	0.003	8.3	22.3	0.12	194	0.01	0.03	0.01	0.02	0.02
	B	12.5	298	2.1	0.019	0.004	0.114	1.0	0.016	0.003	8.3	22.2	0.15	194	0.01	0.02	0.01	0.02	0.02
1008	A	16.0	295	2.3	0.015	0.004	0.113	1.0	0.015	0.005	8.3	22.5	0.16	192	0.01	0.02	0.01	0.02	0.03
1016	A	15.0	299	1.8	0.014	0.003	0.106	1.3	0.017	0.005	8.3	22.1	0.09	194	0.01	0.01	0.01	0.02	0.02
	B	14.5	299	2.1	0.018	0.003	0.096	1.0	0.012	0.003	8.3	22.2	0.17	194	0.01	0.02	0.01	0.03	0.02
1040	A	14.7	301	2.8	0.018	0.004	0.118	1.9	0.015	0.002	8.3	22.1	0.14	196	0.01	0.02	0.01	0.02	0.02
1041	A	17.3	300	3.0	0.014	0.004	0.098	1.0	0.012	0.002	8.4	22.1	0.19	195	0.01	0.02	0.01	0.02	0.02
	B	14.9	301	4.7	0.033	0.004	0.134	1.3	0.020	0.004	8.0	22.0	0.25	196	0.01	0.03	0.01	0.02	0.03
1042	A	16.0	301	9.2	0.030	0.004	0.113	1.0	0.018	0.003	8.2	22.1	0.40	193	0.01	0.01	0.01	0.02	0.03

A . . . surface samples

B . . . bottom samples

* . . . filtered reactive orthophosphate

Table 4: Summary of Results, Standard Deviation per Station, 1975, Nanticoke Water Chemistry

Stn.		Temp °C	Cond µS	Turb FTU	NH ₃ N-mg/l	NO ₂ N-mg/l	NO ₃ N-mg/l	Phenols µg/l	Tot P mg/l	Diss P* mg/l	pH SU	Cl ⁻ mg/l	Tot Fe mg/l	Diss Solids mg/l	Tot Cd mg/l	Tot Cu mg/l	Tot Pb mg/l	Tot Ni mg/l	Tot Zn mg/l
112	A	7.1	6.55	2.10	0.0108	0.0013	0.0430	0.75	0.0029	0.0009	0.19	0.59	0.20	5.75	0.000	0.000	0.000	0.004	0.018
	B	5.4	5.59	2.15	0.0079	0.0010	0.0446	0.00	0.0033	0.0012	0.18	0.59	0.09	3.77	0.000	0.003	0.000	0.004	0.025
501	A	6.4	6.55	1.86	0.0137	0.0009	0.0485	0.37	0.0038	0.0010	0.22	0.59	0.11	4.20	0.000	0.011	0.000	0.004	0.010
	B	5.0	5.63	1.93	0.0166	0.0014	0.0516	0.00	0.0036	0.0010	0.24	0.72	0.11	3.65	0.000	0.005	0.000	0.004	0.022
518	A	5.9	6.78	1.64	0.0092	0.0010	0.0401	0.37	0.0030	0.0012	0.13	0.65	0.06	4.47	0.000	0.030	0.008	0.028	0.019
648	A	6.5	6.51	1.68	0.0075	0.0008	0.0318	0.75	0.0067	0.0034	0.19	0.65	0.07	4.20	0.000	0.003	0.000	0.004	0.015
	B	6.2	7.44	1.23	0.0145	0.0010	0.0367	1.13	0.0030	0.0013	0.19	0.65	0.09	4.68	0.000	0.007	0.000	0.004	0.016
810	A	6.5	6.55	1.27	0.0160	0.0008	0.0402	0.00	0.0031	0.0006	0.19	0.65	0.07	5.62	0.000	0.016	0.000	0.005	0.034
	B	6.0	8.86	1.71	0.0146	0.0011	0.0412	1.51	0.0073	0.0019	0.19	0.75	0.08	5.80	0.000	0.004	0.000	0.018	0.024
994	A	6.6	7.07	1.03	0.0079	0.0013	0.0338	0.75	0.0079	0.0030	0.27	0.53	0.07	4.50	0.000	0.034	0.004	0.004	0.015
	B	5.6	7.07	0.99	0.0215	0.0011	0.0465	0.00	0.0057	0.0024	0.24	0.59	0.08	4.75	0.000	0.018	0.004	0.004	0.017
1008	A	7.7	0.00	1.34	0.0079	0.0007	0.0319	0.00	0.0032	0.0008	0.14	0.50	0.07	0.00	0.000	0.018	0.000	0.005	0.017
1016	A	6.5	6.41	0.88	0.0067	0.0011	0.0321	0.75	0.0082	0.0048	0.15	0.74	0.03	4.10	0.000	0.007	0.000	0.004	0.033
	B	6.2	9.54	1.23	0.0162	0.0007	0.0444	0.00	0.0015	0.0010	0.20	0.75	0.10	6.18	0.000	0.026	0.000	0.024	0.022
1040	A	5.8	6.23	1.51	0.0125	0.0010	0.0399	1.21	0.0049	0.0011	0.18	0.79	0.06	4.17	0.000	0.011	0.000	0.010	0.022
1041	A	5.6	8.37	2.49	0.0073	0.0010	0.0269	0.00	0.0036	0.0007	0.11	0.78	0.06	5.50	0.000	0.024	0.000	0.005	0.019
	B	5.2	6.73	4.86	0.0215	0.0014	0.0388	0.75	0.0085	0.0019	0.21	0.70	0.016	4.49	0.000	0.047	0.004	0.004	0.019
1042	A	5.9	8.38	14.70	0.0352	0.0007	0.0377	0.00	0.0078	0.0011	0.16	0.78	0.46	1.54	0.000	0.003	0.000	0.011	0.023

A . . . surface samples

B . . . bottom samples

* . . . filtered reactive orthophosphate

TABLE 5: Two-Way Analysis of Variance, 1975 Data-Nanticoke Water Chemistry

Parameter	Between Dates		Between Stations	
	$F_{10,7}$	Significance*	$F_{7,10}$	Significance*
Conductivity	32.80	S.D.	1.04	N.S.D.
Turbidity	5.04	S.D.	1.77	N.S.D.
pH	31.82	S.D.	1.02	N.S.D.
Chloride	96.67	S.D.	0.82	N.S.D.
Total P	4.82	S.D.	0.90	N.S.D.
Dissolved P	4.56	S.D.	1.58	N.S.D.
Nitrate	32.49	S.D.	1.34	N.S.D.
Nitrite	20.41	S.D.	2.43	N.S.D.
Ammonia	10.64	S.D.	0.94	N.S.D.
Total N	10.59	S.D.	1.30	N.S.D.
Dissolved Solids	36.67	S.D.	1.35	N.S.D.
Total Fe	4.91	S.D.	2.31	N.S.D.

*Tested at 0.05 probability. Tables values of $F_{10,7}=3.14$ and $F_{7,10}=3.63$

S.D. means significant difference

N.S.D. means no significant difference

TABLE 6: Daily Means and Standard Deviations from Record at Station 1040

Date 1975	Depth m	Temperature °C		Dissolved Oxygen mg/l		Dissolved Oxygen % Saturation		Redox Potential mV		pH		Conductivity (25°C) μ S	
		Mean	σ^*	Mean	σ	Mean	σ	Mean	σ	Mean	σ	Mean	σ
May 28	0.8	9.25	0.76	11.66	0.17	101.1	2.0	196.7	7.9	8.27	0.10	285.9	5.6
	3.1	6.53	0.44	12.33	0.16	100.4	1.4	255.0	11.2	8.22	0.03	285.7	1.3
May 29	0.8	10.08	0.84	11.42	0.20	101.0	2.0	209.4	10.8	8.24	0.09	280.0	4.1
	3.1	9.35	0.36	11.82	0.18	102.9	1.5	262.5	8.0	8.20	0.03	288.0	1.0
May 30	0.8	11.31	0.92	11.42	0.16	104.0	2.8	188.4	21.9	8.19	0.08	279.8	3.6
	3.1	9.87	0.58	11.93	0.17	105.1	1.3	264.0	14.6	8.19	0.08	289.0	1.0
May 31	0.8	11.08	0.52	11.19	0.21	101.3	2.0	225.0	15.9	8.15	0.10	275.1	5.7
	3.1	10.06	0.92	11.77	0.18	104.0	2.4	268.9	9.3	8.15	0.04	289.6	1.0
Jun 1	0.8	10.64	0.71	11.30	0.17	101.3	2.1	228.2	10.3	8.06	0.08	271.9	4.0
	3.1	9.46	0.47	11.84	0.17	103.7	1.5	275.4	3.6	8.15	0.04	289.6	1.1
Jun 2	0.8	12.56	0.59	11.07	0.30	103.8	3.3	230.7	9.2	7.99	0.09	267.8	7.4
	3.1	10.09	0.59	11.98	0.19	106.5	1.9	279.1	4.8	8.19	0.06	289.5	1.0
Jun 3	0.8	12.11	0.37	10.89	0.25	100.9	2.1	238.3	12.2	7.96	0.08	260.0	5.1
	3.1	10.36	0.50	11.98	0.19	106.9	1.8	274.5	4.8	8.17	0.04	289.7	1.0
Jun 4	0.8	12.26	0.54	10.65	0.33	99.2	3.2	246.3	9.2	7.91	0.08	256.6	6.2
	3.1	12.59	1.35	11.29	0.54	105.6	2.3	277.6	3.7	8.20	0.04	289.4	1.3
Jun 5	0.8	12.77	0.82	10.25	0.20	96.6	2.0	239.2	7.1	7.82	0.08	248.9	5.6
	3.1	13.28	0.54	10.91	0.17	103.8	1.1	280.6	3.7	8.21	0.04	289.1	1.3
Jun 6	0.8	9.81	1.79	10.41	0.38	91.6	2.8	245.5	11.4	7.69	0.12	227.3	16.2
	3.1	11.70	1.36	11.12	0.37	102.0	1.4	281.9	5.6	8.18	0.03	292.0	1.3
Jun 7	3.1	8.61	0.65	11.40	0.17	97.3	2.8	285.7	6.1	8.10	0.07	292.6	1.4

* σ means standard deviation.

TABLE 7: Significant Spectral Periods (Hours) for May 28-June 7, 1975 Record, Nanticoke - over 80 per cent Confidence Level

Depth	0.8 m	3.1 m
Temperature	---	2.7, 2.4
Conductivity	---	---
pH	1.8, 1.4	2.2, 3.4, 5.3, 12.0
Dissolved Oxygen	---	1.3
Redox Potential	---	4.6, 6.9

TABLE 8: Two-Way Analysis of Variance 1969-1975 Data,
Nanticoke

Parameter	Between Years		Between Stations	
	F(6,378)	Significance ^a	F(8,378)	Significance ^a
Conductivity	157.0	S.D.	2.01	S.D.
Total P	10.2	S.D.	1.75	N.S.D.
Total N	13.9	S.D.	1.40	N.S.D.
pH	12.7	S.D.	0.65	N.S.D.
Turbidity	16.6	S.D.	3.35	S.D.

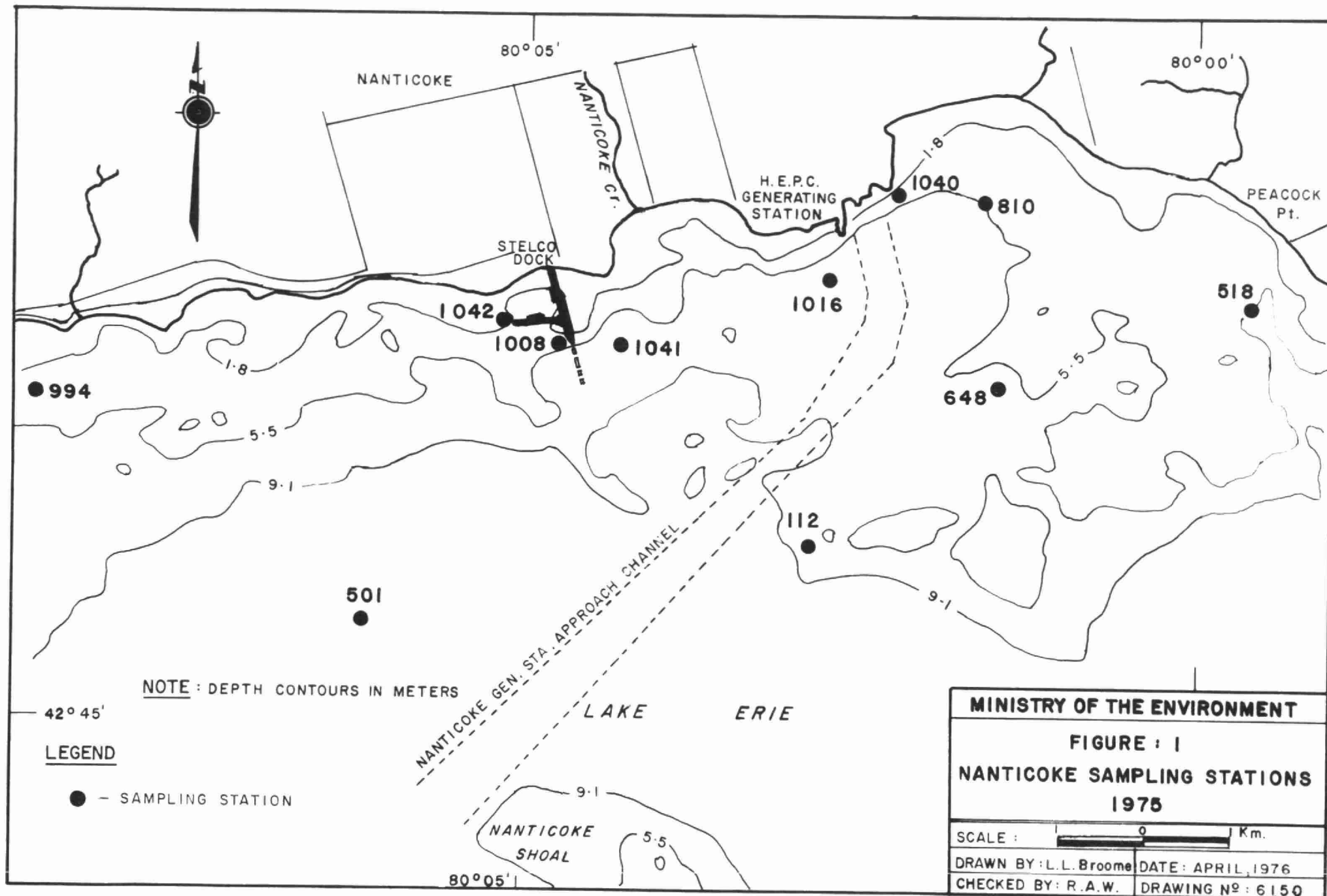
- a. Tested at 0.05 probability.
S.D. means significant difference.
N.S.D. means no significant difference.

TABLE 9: Comparison of Water Chemistry Changes at Nearshore and Offshore Stations,
Nanticoke, 1969-75

Parameter	Mean Value ^a			Mean Change/Year ^a		
	All Stations	Nearshore Stations	Offshore Stations	All Stations	Nearshore Stations	Offshore Stations
Conductivity μS	314.5±1.8	315.0±1.8	313.5±1.8	-3.8 ^b ±0.9	-3.8 ^b ±0.9	-3.7 ^b ±0.9
Turbidity FTU	3.99±0.58	4.43±0.68	3.11±0.52	-0.34 ^b ±0.30	-0.31±0.35	-0.40 ^b ±0.26
pH	8.19±0.10	8.17±0.10	8.23±0.11	0.00±0.05	0.00±0.05	0.00±0.05
Total P mg/l	0.0178±0.0014	0.0183±0.0015	0.0167±0.0015	-0.0002±0.0007	-0.0002±0.0007	-0.0002±0.0007
Total N mg/l	0.398±0.023	0.408±0.025	0.379±0.022	0.002±0.012	0.004±0.013	-0.002±0.011

a all ± limits are at 95% confidence level

b in these cases the sign of the change is significant as the values are larger than the limits.



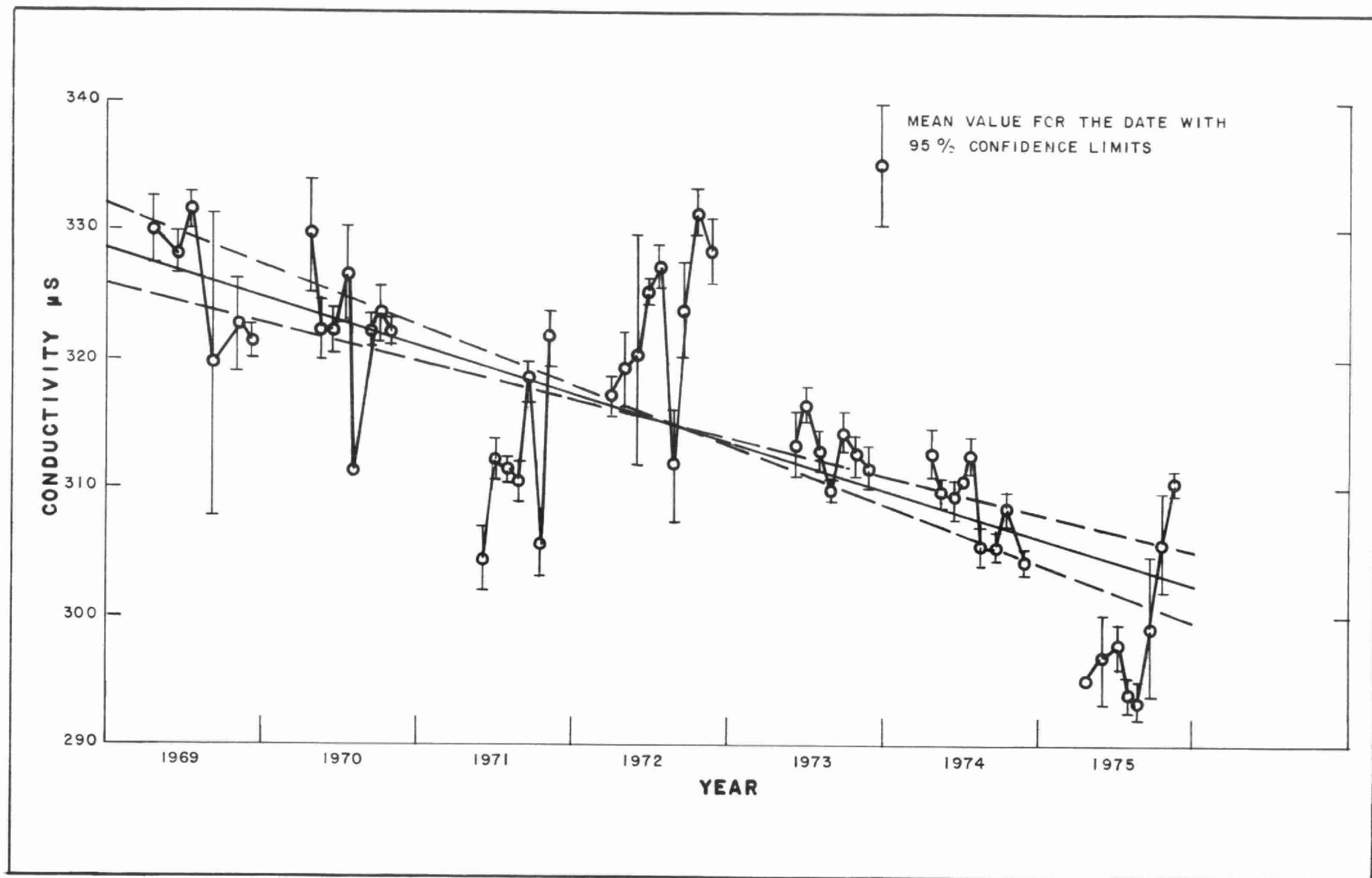


FIGURE 2 : 1969 - 1975 VARIATION OF CONDUCTIVITY

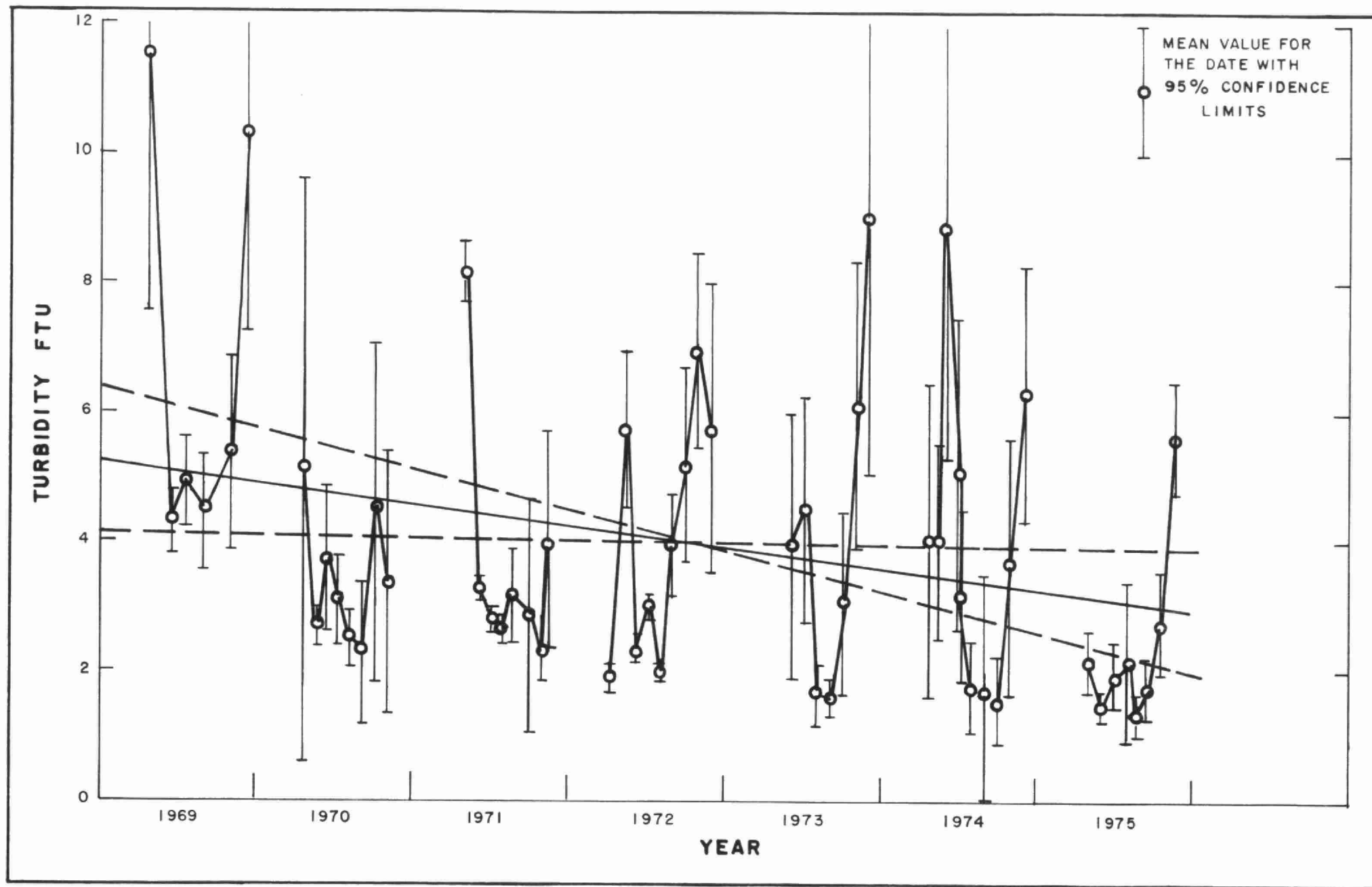


FIGURE 3 : 1969 - 1975 VARIATION OF TURBIDITY

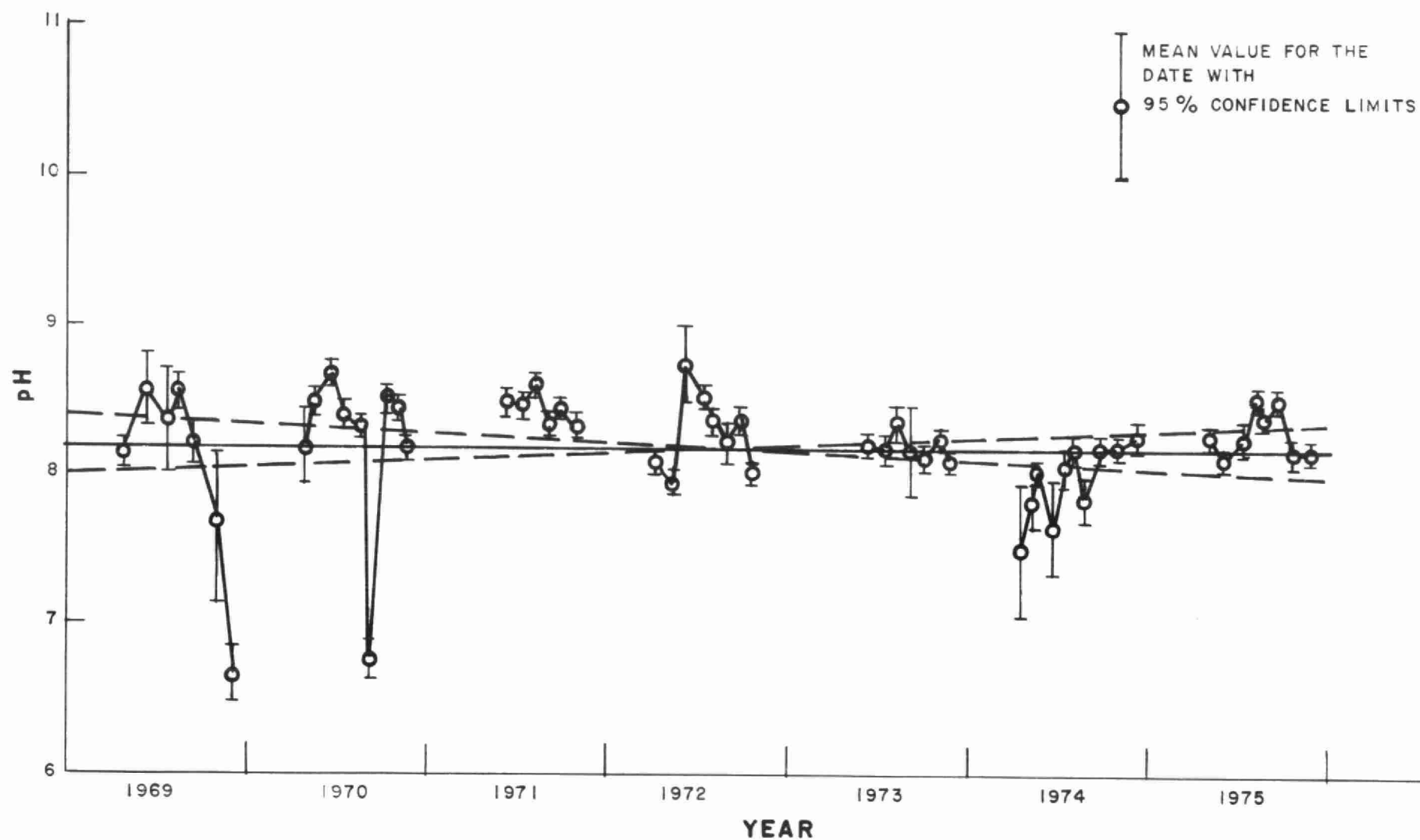


FIGURE 4 : 1969 - 1975 VARIATION OF pH

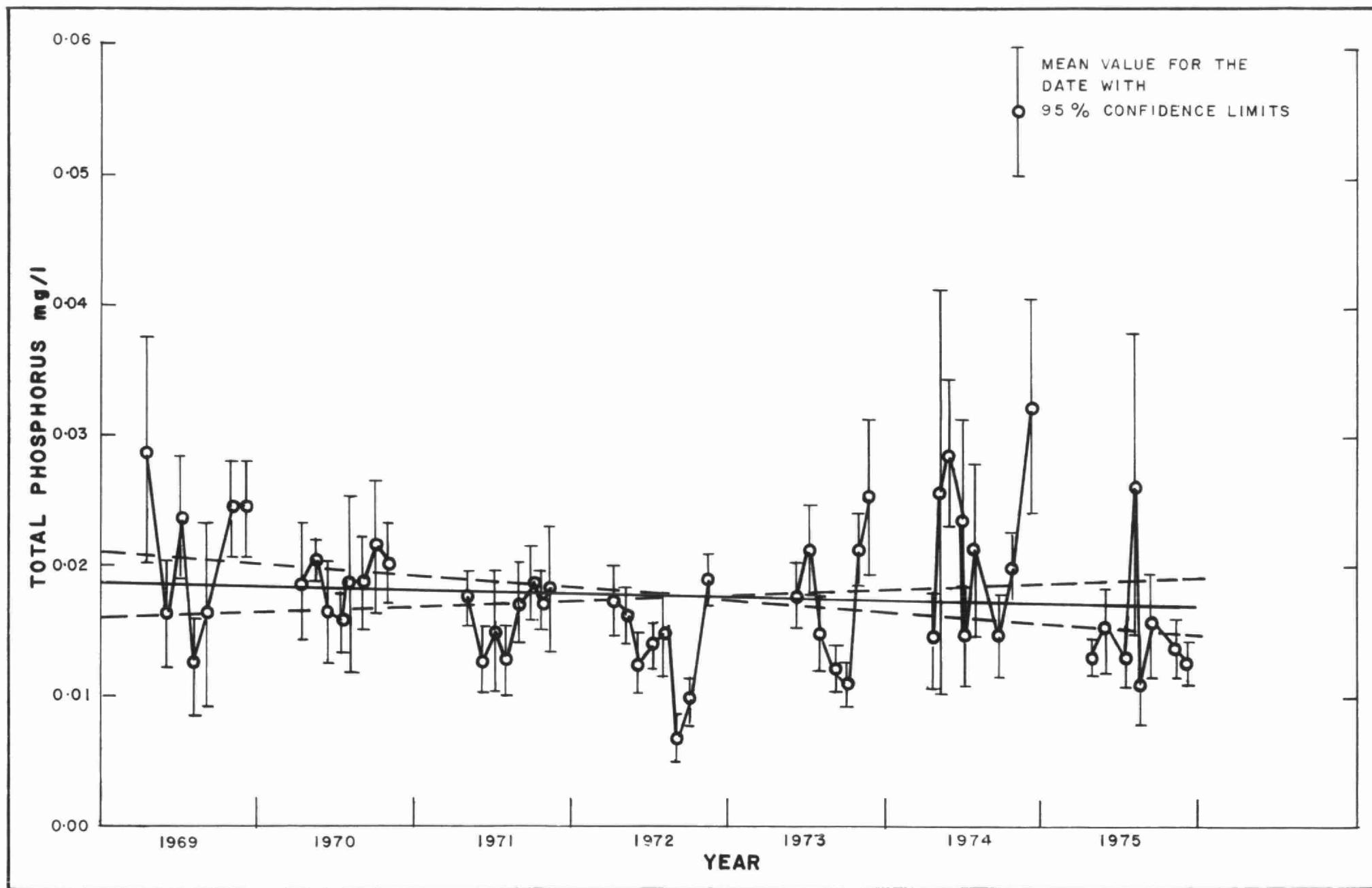


FIGURE 5 : 1969 - 1975 VARIATION OF TOTAL PHOSPHORUS

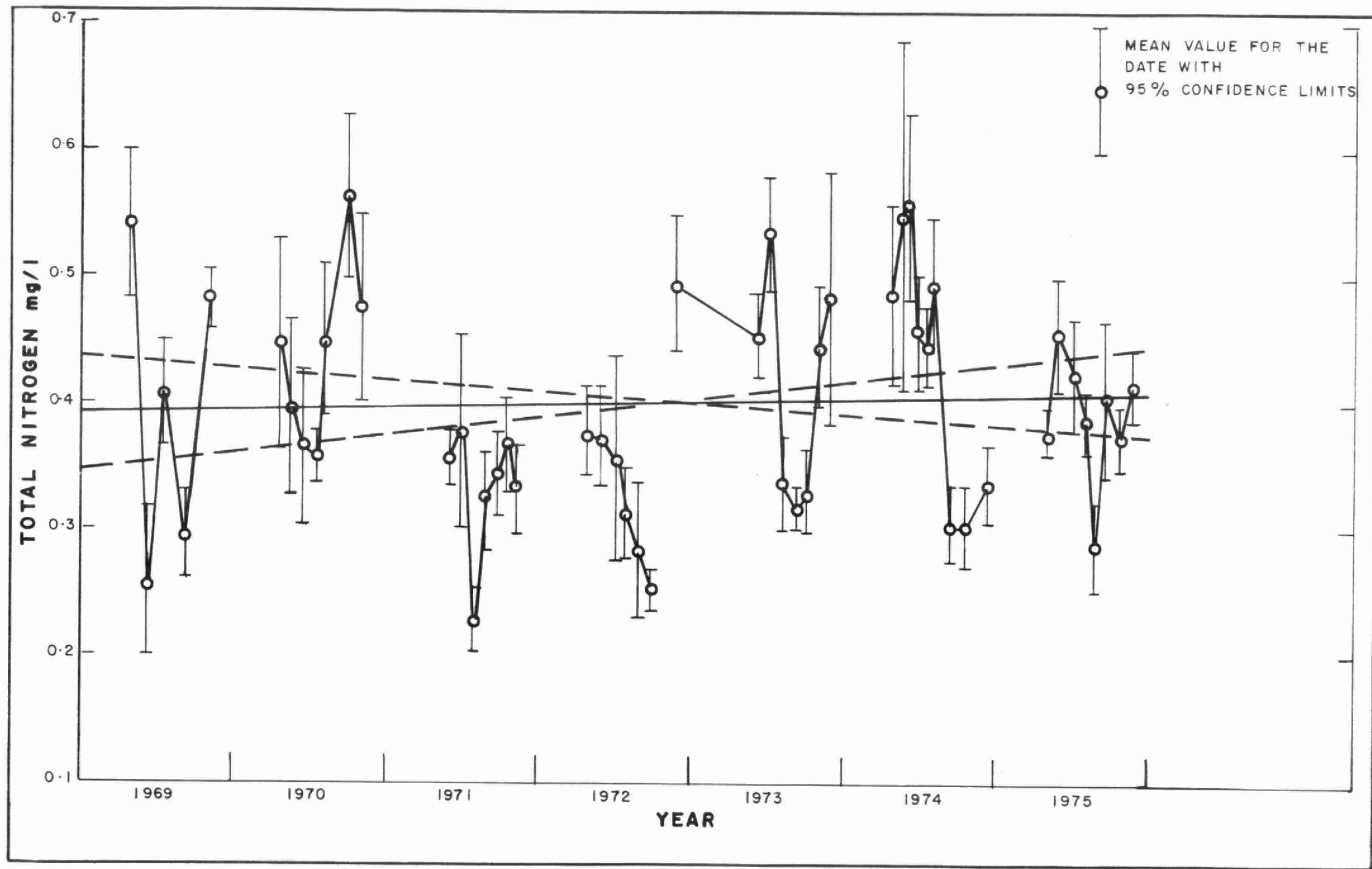


FIGURE 6 : 1969 - 1975 VARIATION OF TOTAL NITROGEN

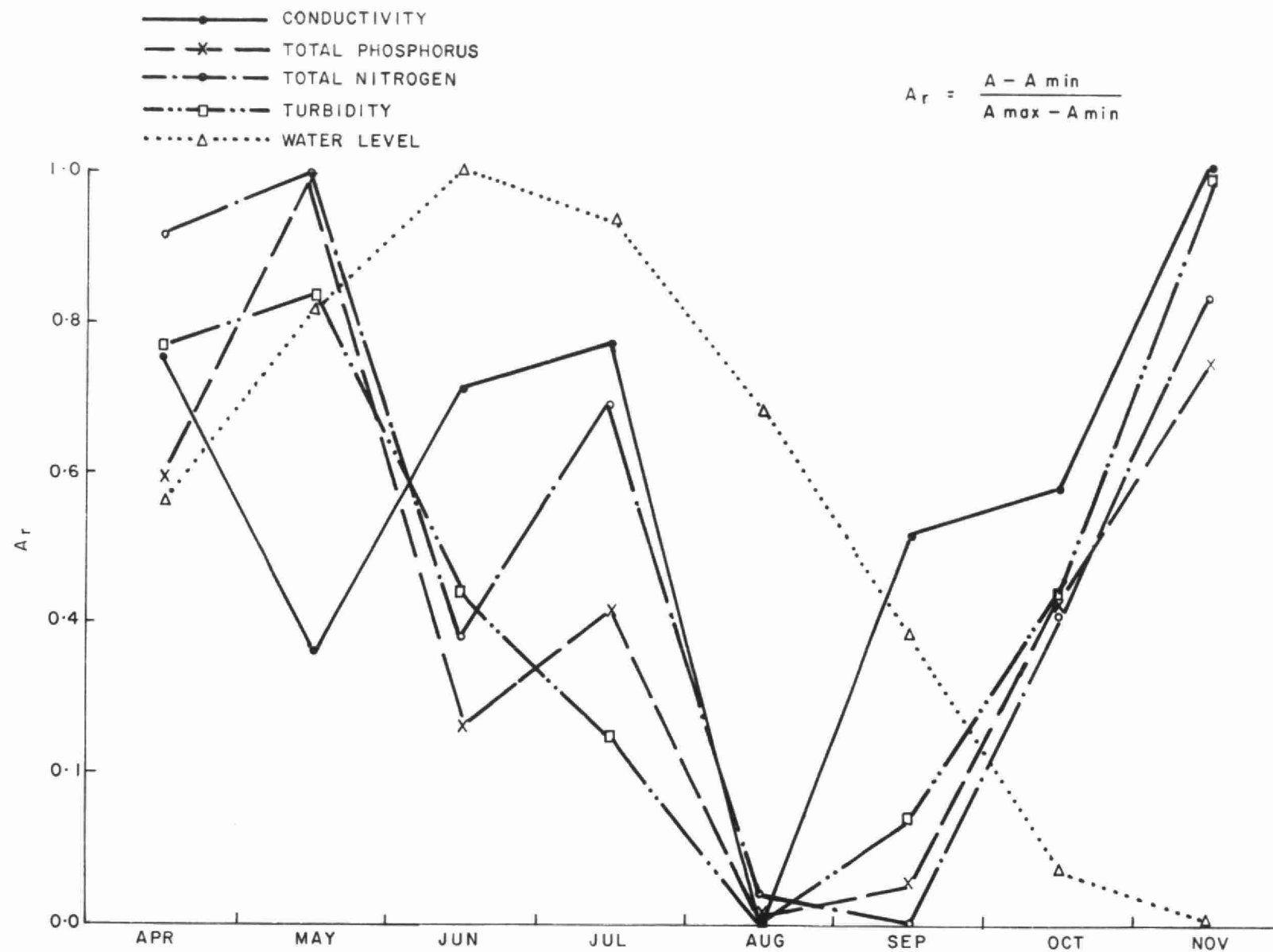


FIGURE 7 : 1969 -1975 MEAN SEASONAL CHANGES NANTICOKE

APPENDIX I, Table 1: Temperature, °C, Nanticoke 1975

Station	Depth-m	Apr 29	May 28	Jul 9	Aug 7	Aug 20	Sep 17	Oct 22	Nov 19	Mean	Std. Dev.
112	1.0	5.5	8.0	24.0	21.9	21.5	17.0	12.0	10.0	15.0	7.1
	11.0	5.3	6.5	16.5	-	19.0	17.0	12.0	10.0	12.3	5.4
501	1.0	5.5	12.0	23.0	22.0	21.5	17.5	12.2	10.0	15.5	6.4
	11.0	5.3	6.0	13.5	-	18.0	17.0	11.5	10.0	11.6	5.0
518	2.5	7.6	8.5	19.0	22.0	21.5	18.0	12.5	10.0	14.9	5.9
648	1.0	6.5	8.0	22.0	21.9	21.5	17.5	12.0	10.0	14.9	6.5
	6.0	6.0	7.0	18.0	-	21.0	17.0	12.0	-	13.5	6.2
810	1.0	7.5	7.5	21.0	22.9	22.0	19.5	12.8	11.0	15.5	6.5
	7.0	6.5	7.5	16.0	21.9	21.5	18.0	12.0	11.0	14.3	6.0
994	1.0	7.0	8.0	22.5	21.8	21.5	17.0	11.5	9.0	14.8	6.6
	6.0	6.3	7.0	16.0	-	21.0	17.0	11.5	9.0	12.5	5.6
1008	3.0	7.0	8.3	22.0	21.3	21.5	-	-	-	16.0	7.7
1016	1.0	7.0	7.5	21.0	21.8	22.0	18.2	12.8	9.5	15.0	6.5
	9.0	6.5	7.0	16.0	21.8	21.0	17.5	12.0	-	14.5	6.2
1040	3.0	7.5	7.5	18.0	21.6	21.5	18.0	12.0	11.5	14.7	5.8
1041	1.0	-	-	22.5	21.5	21.5	17.0	12.5	9.0	17.3	5.6
	8.0	-	8.5	16.0	21.5	20.0	17.0	12.0	9.0	14.9	5.2
1042	2.5		8.7	21.6	21.3	21.8	17.0	12.0	9.5	16.0	5.9
Mean	Surface	6.5	8.5	22.3	22.0	21.6	17.7	12.3	9.8		
	Bottom	6.0	6.8	16.0	21.7	20.1	17.2	11.9	9.8		
Std. Dev.	Surface	0.84	1.73	1.07	0.44	0.24	0.92	0.48	0.75		
	Bottom	0.56	0.52	1.32	0.21	1.36	0.39	0.24	0.84		

APPENDIX I, Table 2: Conductivity μS , Nanticoke 1975

Station	Depth-m	Apr 29	May 28	Jul 9	Aug 7	Aug 20	Sep 17	Oct 22	Nov 19	Mean	Std. Dev.
112	1.0	295	295	300	290	290	300	300	310	298	6.55
	11.0	295	300	295	295	295	305	295	310	298	5.59
501	1.0	295	300	295	290	290	300	300	310	298	6.55
	11.0	295	300	295	295	295	300	305	310	299	5.63
518	2.5	295	295	300	295	295	305	310	310	301	6.78
648	1.0	295	295	290	295	290	300	300	310	297	6.51
	6.0	295	295	300	290	290	305	305	310	299	7.44
810	1.0	295	300	300	295	295	285	310	310	300	6.55
	7.0	295	300	300	295	295	280	305	310	298	8.86
994	1.0	295	290	295	290	295	300	305	310	298	7.07
	6.0	295	285	300	295	295	300	300	310	298	7.07
1008	3.0	295	295	295	295	295	----	----	----	295	----
1016	1.0	295	300	295	295	290	300	305	310	299	6.41
	9.0	295	285	300	295	290	305	305	315	299	9.54
1040	3.0	295	300	300	295	295	300	310	310	301	6.23
1041	1.0	----	----	295	295	290	300	310	310	300	8.37
	8.0	----	300	295	295	295	300	310	310	301	6.73
1042	2.5	----	300	295	295	295	295	315	310	301	8.38
Mean	Surface	295	297	296	293	291	298	304	310		
	Bottom	295	295	298	294	294	299	304	311		
Std. Dev.	Surface	----	4.08	3.45	2.67	2.44	5.67	4.50	----		
	Bottom	----	7.07	2.67	1.89	2.44	8.86	4.76	1.89		

APPENDIX I, Table 3: Turbidity (FTU), Nanticoke 1975

Station	Depth-m	Apr 29	May 28	Jul 9	Aug 7	Aug 20	Sep 17	Oct 22	Nov 19	Mean	Std. Dev.
112	1.0	2.1	1.4	1.0	1.0	1.6	1.0	1.9	7.3	2.2	2.10
	11.0	2.6	1.5	1.4	1.2	1.6	0.95	1.9	7.5	2.3	2.15
501	1.0	3.5	0.9	1.0	1.0	1.2	0.80	2.0	6.1	2.1	1.86
	11.0	3.9	1.7	3.3	1.1	1.1	0.90	1.8	6.5	2.5	1.93
518	2.5	2.0	1.4	1.5	2.1	1.6	2.4	4.3	6.0	2.7	1.64
648	1.0	2.3	1.1	1.4	1.0	1.4	2.0	1.4	6.1	2.1	1.68
	6.0	1.6	1.4	1.2	---	1.3	1.1	2.0	4.6	1.9	1.23
810	1.0	1.6	1.5	2.5	2.5	1.5	2.3	2.8	5.4	2.5	1.27
	7.0	2.1	2.0	1.9	3.6	1.0	1.4	5.0	5.6	2.8	1.71
994	1.0	2.0	1.3	1.4	1.2	1.0	2.4	1.9	4.2	1.9	1.03
	6.0	1.5	1.6	2.5	1.2	1.0	2.4	3.0	3.9	2.1	0.99
1008	3.0	1.2	1.0	3.1	5.6	2.0	---	---	---	2.3	1.34
1016	1.0	2.0	1.6	1.4	1.5	0.8	1.7	2.0	3.8	1.8	0.88
	9.0	2.1	1.6	2.9	---	0.6	1.3	2.0	4.4	2.1	1.23
1040	3.0	2.3	1.8	2.4	2.5	1.1	2.7	3.6	6.1	2.8	1.51
1041	1.0	---	---	2.2	1.5	1.8	1.4	3.3	7.9	3.0	2.49
	8.0	---	1.2	3.4	4.1	1.5	1.6	6.0	15.0	4.7	4.86
1042	2.5	---	0.6	3.5	2.0	4.5	3.5	8.0	42.0	9.2	14.7
Mean	Surface	2.2	1.3	1.4	1.4	1.3	1.7	2.2	5.8		
	Bottom	2.3	1.6	2.4	2.2	1.2	1.4	3.1	6.8		
Std. Dev.	Surface	0.65	0.26	0.44	0.54	0.35	0.62	0.64	1.50		
	Bottom	0.88	0.25	0.89	1.48	0.34	0.51	1.71	3.84		

APPENDIX I, Table 4: pH , Nanticoke 1975

Station	Depth-m	Apr 29	May 28	Jul 9	Aug 7	Aug 20	Sep 17	Oct 22	Nov 19	Mean	Std. Dev.
112	1.0	8.3	8.2	8.6	8.6	8.5	8.5	8.2	8.1	8.4	0.19
	11.0	8.2	8.1	8.1	8.5	8.1	8.5	8.1	8.1	8.2	0.18
501	1.0	8.2	8.4	8.6	8.7	8.5	8.5	8.1	8.1	8.4	0.22
	11.0	8.2	8.0	8.0	8.6	8.0	8.5	8.0	8.1	8.2	0.24
518	2.5	8.3	8.2	8.2	8.5	8.4	8.5	8.2	8.2	8.3	0.13
648	1.0	8.3	8.2	8.6	8.6	8.5	8.5	8.2	8.1	8.4	0.19
	6.0	8.3	8.1	8.2	8.6	8.5	8.5	8.2	8.1	8.3	0.19
810	1.0	8.3	8.1	8.0	8.5	8.4	8.5	8.2	8.2	8.3	0.19
	7.0	8.3	8.1	8.0	8.5	8.5	8.5	8.2	8.2	8.3	0.19
994	1.0	8.3	7.8	8.5	8.6	8.4	8.5	8.0	8.2	8.3	0.27
	6.0	8.3	8.0	8.0	8.6	8.4	8.5	8.1	8.2	8.3	0.24
1008	3.0	8.2	8.1	8.4	8.4	8.4	---	---	---	8.3	0.14
1016	1.0	8.2	8.1	8.5	8.4	8.4	8.5	8.2	8.2	8.3	0.15
	9.0	8.3	8.1	8.1	8.4	8.4	8.5	8.7	8.2	8.3	0.20
1040	3.0	8.3	8.1	8.0	8.5	8.4	8.5	8.2	8.2	8.3	0.18
1041	1.0	---	---	8.5	8.4	8.4	8.5	8.2	8.3	8.4	0.11
	8.0	---	8.1	7.9	8.5	8.1	8.5	8.2	8.2	8.2	0.21
1042	2.5	---	8.1	8.4	8.5	8.4	8.5	8.2	8.2	8.3	0.16
Mean	Surface	8.3	8.1	8.5	8.5	8.4	8.5	8.2	8.2		
	Bottom	8.3	8.1	8.0	8.5	8.3	8.5	8.2	8.2		
Std. Dev.	Surface	0.05	0.19	0.21	0.11	0.05	0.00	0.07	0.07		
	Bottom	0.05	0.04	0.09	0.07	0.21	0.00	0.22	0.05		

APPENDIX I, Table 5: Dissolved Solids (mg/l), Nanticoke 1975

Station	Depth-m	Apr 29	May 28	Jul 9	Aug 7	Aug 20	Sep 17	Oct 22	Nov 19	Mean	Std. Dev.
112	1.0	192	192	195	182	189	195	195	202	192	5.75
	11.0	192	195	192	192	192	198	192	202	194	3.77
501	1.0	192	195	192	189	189	195	195	202	193	4.20
	11.0	192	195	192	192	192	195	198	202	195	3.65
518	2.5	192	192	195	192	192	198	202	202	196	4.47
648	1.0	192	192	189	192	189	195	195	202	193	4.20
	6.0	192	192	195	189	189	198	198	202	194	4.68
810	1.0	192	195	195	192	192	185	202	202	194	5.62
	7.0	192	195	195	192	192	182	198	202	194	5.80
994	1.0	192	189	192	189	192	195	198	202	194	4.50
	6.0	192	185	195	192	192	195	195	202	194	4.75
1008	3.0	192	192	192	192	192	-	-	-	192	0.0
1016	1.0	192	195	192	192	189	195	198	202	194	4.10
	9.0	192	185	195	192	189	198	198	205	194	6.18
1040	3.0	192	195	195	192	192	195	202	202	196	4.17
1041	1.0	-	-	192	192	189	195	202	202	195	5.50
	8.0	-	195	192	192	192	195	202	202	196	4.49
1042	2.5	-	195	192	192	192	192	195	-	193	1.54
Mean	Surface	192	193	192	190	190	194	198	202		
	Bottom	192	192	194	190	191	194	197	202		
Std. Dev.	Surface	0.00	2.45	2.07	3.68	1.46	3.78	3.13	0.00		
	Bottom	0.00	4.72	1.60	3.68	1.46	5.68	2.51	1.13		

APPENDIX I, Table 6: Total P (mg/l), Nanticoke 1975

Station	Depth-m	Apr 29	May 28	Jul 9	Aug 7	Aug 20	Sep 17	Oct 22	Nov 19	Mean	Std. Dev.
112	1.0	0.012	0.008	0.008	0.016	0.008	0.011	0.012	0.014	0.011	0.0029
	11.0	0.014	0.015	0.017	0.014	0.011	0.006	0.014	0.014	0.013	0.0033
501	1.0	0.015	0.010	0.008	0.021	0.009	0.014	0.012	0.013	0.013	0.0038
	11.0	0.015	0.012	0.016	0.014	0.006	0.009	0.016	0.015	0.013	0.0036
518	2.5	0.014	0.017	0.012	0.019	0.010	0.017	0.017	0.013	0.015	0.0030
648	1.0	0.014	0.007	0.010	0.029	0.015	0.010	0.013	0.018	0.015	0.0067
	6.0	0.016	0.020	0.018	0.099	0.010	0.015	0.010	0.013	0.025	0.0030
810	1.0	0.013	0.012	0.010	0.019	0.009	0.015	0.014	0.011	0.013	0.0031
	7.0	0.014	0.028	0.009	0.024	0.016	0.028	0.015	0.012	0.018	0.0073
994	1.0	0.010	0.009	0.010	0.017	0.005	0.030	0.019	0.019	0.015	0.0079
	6.0	0.010	0.011	0.014	0.028	0.013	0.017	0.019	0.014	0.016	0.0057
1008	3.0	0.015	0.014	0.012	0.020	0.012	-	-	-	0.015	0.0032
1016	1.0	0.010	0.026	0.017	0.032	0.010	0.016	0.010	0.012	0.017	0.0082
	9.0	0.011	0.015	0.011	-	0.011	0.013	0.011	0.013	0.012	0.0015
1040	3.0	0.013	0.018	0.019	0.022	0.007	0.015	0.012	0.010	0.015	0.0049
1041	1.0	-	-	0.011	0.011	0.007	0.014	0.012	0.018	0.012	0.0036
	8.0	-	0.034	0.012	0.029	0.019	0.012	0.016	0.016	0.020	0.0085
1042	2.5	-	0.013	0.010	0.016	0.022	0.016	0.018	0.034	0.018	0.0078
Mean	Surface	0.012	0.012	0.011	0.021	0.009	0.016	0.013	0.015		
	Bottom	0.013	0.014	0.014	0.035	0.012	0.014	0.014	0.013		
Std. Dev.	Surface	0.0020	0.0070	0.0030	0.0074	0.0031	0.0066	0.0028	0.0032		
	Bottom	0.0023	0.0067	0.0033	0.0321	0.0042	0.0070	0.0031	0.0013		

APPENDIX I, Table 7: Filtered Reactive Orthophosphate, (mg P/l), Nanticoke, 1975

Station	Depth-m	Apr 29	May 28	Jul 9	Aug 7	Aug 20	Sep 17	Oct 22	Nov 19	Mean	Std. Dev.
112	1.0	0.003	0.001	0.001	0.001	0.001	0.003	0.002	0.003	0.002	0.0009
	11.0	0.002	0.004	0.001	0.001	0.001	0.004	0.002	0.002	0.002	0.0012
501	1.0	0.003	0.003	0.001	0.004	0.003	0.004	0.002	0.002	0.003	0.0010
	11.0	0.004	0.003	0.002	0.001	0.001	0.003	0.003	0.002	0.002	0.0010
518	2.5	0.001	0.004	0.001	0.002	0.001	0.003	0.004	0.002	0.002	0.0012
648	1.0	0.001	0.001	0.001	0.009	0.005	0.009	0.004	0.002	0.004	0.0034
	6.0	0.001	0.004	0.001	0.001	0.001	0.004	0.001	0.002	0.002	0.0013
810	1.0	0.001	0.002	0.003	0.002	0.002	0.002	0.002	0.001	0.002	0.0006
	7.0	0.001	0.006	0.001	0.001	0.005	0.003	0.004	0.002	0.003	0.0019
994	1.0	0.001	0.002	0.001	0.002	0.002	0.011	0.004	0.003	0.003	0.0030
	6.0	0.001	0.004	0.002	0.009	0.004	0.005	0.003	0.003	0.003	0.0024
1008	3.0	0.001	0.003	0.001	0.002	0.002	-	-	-	0.002	0.0008
1016	1.0	0.001	0.009	0.005	0.015	0.004	0.001	0.002	0.002	0.005	0.0048
	9.0	0.002	0.004	0.003	0.001	0.004	0.002	0.003	0.002	0.003	0.0010
1040	3.0	0.001	0.004	0.001	0.001	0.001	0.002	0.003	0.002	0.002	0.0011
1041	1.0	-	-	0.001	0.001	0.002	0.002	0.002	0.003	0.002	0.0007
	8.0	-	0.008	0.002	0.004	0.003	0.003	0.003	0.003	0.004	0.0019
1042	2.5	-	0.003	0.001	0.002	0.004	0.004	0.003	0.004	0.003	0.0011
Mean	Surface	0.002	0.003	0.002	0.005	0.003	0.005	0.003	0.002		
	Bottom	0.002	0.005	0.002	0.003	0.003	0.003	0.003	0.002		
Std. Dev.	Surface	0.0010	0.0030	0.0015	0.0052	0.0013	0.0038	0.0009	0.0007		
	Bottom	0.0011	0.0017	0.0007	0.0030	0.0017	0.0009	0.0009	0.0004		

APPENDIX I, Table 8: Total N (mg N/l), Nanticoke 1975

Station	Depth-m	Apr 29	May 28	Jul 9	Aug 7	Aug 20	Sep 17	Oct 22	Nov 19	Mean	Std. Dev.
112	1.0	0.380	0.375	0.320	0.350	0.445	0.360	0.325	0.360	0.364	0.0390
	11.0	0.400	0.415	0.480	0.410	0.310	0.334	0.345	0.360	0.382	0.0550
501	1.0	0.430	0.310	0.330	0.380	0.250	0.350	0.340	0.370	0.345	0.0529
	11.0	0.420	0.475	0.510	0.350	0.280	0.340	0.425	0.435	0.404	0.0759
518	2.5	0.380	0.525	0.480	0.410	0.245	0.410	0.435	0.455	0.418	0.0832
648	1.0	0.350	0.375	0.245	0.350	0.265	0.350	0.335	0.370	0.330	0.0482
	6.0	0.370	0.480	0.499	0.580	0.265	0.415	0.335	0.460	0.426	0.1004
810	1.0	0.370	0.420	0.460	0.385	0.295	0.345	0.425	0.425	0.391	0.0531
	7.0	0.380	0.565	0.480	0.360	0.300	0.430	0.375	0.400	0.411	0.0812
994	1.0	0.380	0.400	0.380	0.380	0.250	0.440	0.375	0.390	0.374	0.0545
	6.0	0.390	0.405	0.540	0.380	0.260	0.745	0.340	0.380	0.430	0.1491
1008	3.0	0.360	0.540	0.390	0.340	0.300	-	-	-	0.386	0.0921
1016	1.0	0.330	0.455	0.350	0.370	0.305	0.460	0.355	0.470	0.387	0.0649
	9.0	0.360	0.455	0.290	0.490	0.255	0.395	0.335	0.495	0.384	0.0904
1040	3.0	0.400	0.480	0.480	0.410	0.315	0.360	0.375	0.420	0.405	0.0568
1041	1.0	-	0.485	0.360	0.360	0.280	0.360	0.360	0.430	0.376	0.0646
	8.0	-	-	0.570	0.380	0.390	0.775	0.420	0.530	0.511	0.1507
1042	2.5	-	0.420	0.380	0.375	0.335	0.440	0.420	0.540	0.416	0.0652
Mean	Surface	0.373	0.403	0.349	0.368	0.299	0.381	0.359	0.402		
	Bottom	0.387	0.466	0.496	0.421	0.294	0.491	0.368	0.437		
Std. Dev.	Surface	0.0339	0.0577	0.0651	0.0147	0.0679	0.0480	0.0335	0.0406		
	Bottom	0.0216	0.0575	0.1028	0.0840	0.0469	0.1877	0.0398	0.0620		

APPENDIX I, Table 9: Nitrate (NO₃-N), (mg N/l), Nanticoke 1975

Station	Depth-m	Apr 29	May 28	Jul 9	Aug 7	Aug 20	Sep 17	Oct 22	Nov 19	Mean	Std. Dev.
112	1.0	0.187	0.123	0.096	0.085	0.035	0.119	0.102	0.087	0.104	0.0430
	11.0	0.187	0.137	0.185	0.085	0.090	0.082	0.102	0.087	0.119	0.0446
501	1.0	0.207	0.066	0.096	0.085	0.045	0.075	0.107	0.097	0.097	0.0485
	11.0	0.207	0.137	0.203	0.085	0.084	0.085	0.151	0.102	0.132	0.0516
518	2.5	0.136	0.122	0.156	0.095	0.045	0.067	0.141	0.073	0.104	0.0401
648	1.0	0.147	0.122	0.081	0.085	0.045	0.066	0.102	0.097	0.093	0.0318
	6.0	0.136	0.138	0.145	0.087	0.035	0.087	0.102	0.118	0.106	0.0367
810	1.0	0.136	0.142	0.166	0.095	0.051	0.061	0.131	0.113	0.112	0.0402
	7.0	0.147	0.143	0.185	0.095	0.066	0.066	0.121	0.119	0.118	0.0412
994	1.0	0.137	0.137	0.116	0.094	0.039	0.067	0.112	0.107	0.101	0.0338
	6.0	0.147	0.142	0.195	0.095	0.045	0.072	0.107	0.108	0.114	0.0465
1008	3.0	0.136	0.142	0.126	0.095	0.066	-	-	-	0.113	0.0319
1016	1.0	0.157	0.142	0.078	0.094	0.081	0.067	0.122	0.107	0.106	0.0321
	9.0	0.147	0.142	0.016	0.108	0.061	0.067	0.112	0.112	0.096	0.0444
1040	3.0	0.147	0.137	0.185	0.095	0.071	0.066	0.122	0.118	0.118	0.0399
1041	1.0	-	-	0.116	0.095	0.066	0.066	0.127	0.118	0.098	0.0269
	8.0	-	0.142	0.214	0.095	0.115	0.108	0.136	0.127	0.134	0.0388
1042	2.5		0.127	0.137	0.095	0.071	0.061	0.156	0.147	0.113	0.0377
Mean	Surface	0.161	0.122	0.140	0.090	0.052	0.074	0.115	0.104		
	Bottom	0.161	0.140	0.140	0.093	0.071	0.060	0.115	0.110		
Std. Dev.	Surface	0.0265	0.0288	0.0026	0.0050	0.0162	0.0200	0.0119	0.0106		
	Bottom	0.0282	0.0026	0.0026	0.0081	0.0275	0.0314	0.0119	0.0130		

APPENDIX I, Table 10, Nitrite (NO₂-N) (mg N/l), Nanticoke, 1975

Station	Depth-m	Apr 29	May 28	Jul 9	Aug 7	Aug 20	Sep 17	Oct 22	Nov 19	Mean	Std. Dev.
112	1.0	0.003	0.002	0.004	0.005	0.005	0.006	0.003	0.003	0.004	0.0013
	11.0	0.003	0.003	0.005	0.005	0.005	0.003	0.003	0.003	0.004	0.0010
501	1.0	0.003	0.004	0.004	0.005	0.005	0.005	0.003	0.003	0.004	0.0009
	11.0	0.003	0.003	0.007	0.005	0.006	0.005	0.004	0.004	0.005	0.0014
518	2.5	0.004	0.003	0.004	0.005	0.005	0.003	0.004	0.002	0.004	0.0010
648	1.0	0.003	0.003	0.004	0.005	0.005	0.004	0.003	0.003	0.004	0.0008
	6.0	0.004	0.002	0.004	0.003	0.005	0.003	0.003	0.002	0.003	0.0010
810	1.0	0.004	0.003	0.004	0.005	0.004	0.004	0.004	0.002	0.004	0.0008
	7.0	0.003	0.002	0.005	0.005	0.004	0.004	0.004	0.002	0.004	0.0011
994	1.0	0.003	0.003	0.004	0.006	0.006	0.003	0.003	0.003	0.004	0.0013
	6.0	0.003	0.003	0.005	0.005	0.005	0.003	0.003	0.002	0.004	0.0011
1008	3.0	0.004	0.003	0.004	0.005	0.004	-	-	-	0.004	0.0007
1016	1.0	0.003	0.003	0.002	0.006	0.004	0.003	0.003	0.003	0.003	0.0011
	9.0	0.003	0.003	0.004	0.002	0.004	0.003	0.003	0.003	0.003	0.0007
1040	3.0	0.003	0.003	0.005	0.005	0.004	0.004	0.003	0.002	0.004	0.0010
1041	1.0	-	-	0.004	0.005	0.004	0.004	0.003	0.002	0.004	0.0010
	8.0	-	0.003	0.006	0.005	0.005	0.002	0.004	0.003	0.004	0.0014
1042	2.5	-	0.003	0.003	0.005	0.004	0.004	0.004	0.003	0.004	0.0007
Mean	Surface	0.003	0.003	0.004	0.005	0.005	0.004	0.003	0.003		
	Bottom	0.003	0.003	0.005	0.004	0.005	0.003	0.003	0.003		
Std. Dev.	Surface	0.0004	0.0006	0.0007	0.0004	0.0007	0.0010	0.0003	0.0027		
	Bottom	0.0004	0.0027	0.0010	0.0012	0.0006	0.0009	0.0005	0.0007		

APPENDIX I, Table 11, Ammonia (mg N/l), Nanticoke 1975

Station	Depth-m	Apr 29	May 28	Jul 9	Aug 7	Aug 20	Sep 17	Oct 22	Nov 19	Mean	Std. Dev.
112	1.0	0.005	0.005	0.005	0.010	0.030	0.030	0.010	0.020	0.014	0.0108
	11.0	0.005	0.010	0.030	0.010	0.020	0.020	0.015	0.020	0.016	0.0079
501	1.0	0.005	0.010	0.020	0.020	0.020	0.050	0.010	0.020	0.019	0.0137
	11.0	0.005	0.010	0.045	0.015	0.010	0.050	0.025	0.020	0.023	0.0166
518	2.5	0.005	0.010	0.035	0.015	0.015	0.025	0.015	0.015	0.017	0.0092
648	1.0	0.005	0.010	0.005	0.010	0.020	0.020	0.010	0.025	0.013	0.0075
	6.0	0.005	0.010	0.050	0.005	0.015	0.020	0.010	0.015	0.016	0.0145
810	1.0	0.005	0.010	0.055	0.015	0.020	0.030	0.015	0.010	0.020	0.0160
	7.0	0.005	0.015	0.045	0.005	0.025	0.040	0.020	0.020	0.022	0.0146
994	1.0	0.005	0.010	0.030	0.010	0.020	0.020	0.020	0.015	0.016	0.0079
	6.0	0.005	0.010	0.070	0.005	0.020	0.025	0.010	0.010	0.019	0.0215
1008	3.0	0.005	0.015	0.010	0.020	0.025	-----	-----	-----	0.015	0.0079
1016	1.0	0.005	0.010	0.010	0.010	0.015	0.025	0.020	0.020	0.014	0.0067
	9.0	0.005	0.010	0.055	0.005	0.015	0.025	0.015	0.015	0.018	0.0162
1040	3.0	0.005	0.010	0.045	0.015	0.020	0.025	0.015	0.010	0.018	0.0125
1041	1.0	-----	-----	0.015	0.005	0.020	0.025	0.010	0.010	0.014	0.0073
	8.0	-----	0.010	0.070	0.010	0.025	0.050	0.030	0.035	0.033	0.0215
1042	2.5	-----	0.010	0.015	0.020	0.025	0.110	0.015	0.020	0.030	0.0352
Mean	Surface	0.005	0.009	0.020	0.018	0.021	0.029	0.014	0.016		
	Bottom	0.005	0.011	0.052	0.008	0.019	0.033	0.018	0.018		
Std. Dev.	Surface	0.000	0.0020	0.0177	0.0050	0.0044	0.0102	0.0047	0.0058		
	Bottom	0.000	0.0018	0.0143	0.0039	0.0055	0.0134	0.0075	0.0067		

APPENDIX I, Table 12, Total Iron (mg/l), Nanticoke, 1975

Station	Depth-m	Apr 29	May 28	Jul 9	Aug 7	Aug 20	Sep 17	Oct 22	Nov 19	Mean	Std. Dev.
112	1.0	0.01	0.05	0.07	0.05	0.61	----	0.12	0.31	0.18	0.20
	11.0	0.12	0.05	0.08	0.05	0.18	----	0.14	0.32	0.13	0.09
501	1.0	0.20	0.05	0.04	0.05	0.35	----	0.14	0.24	0.15	0.11
	11.0	0.17	0.09	0.25	0.07	0.41	----	0.15	0.26	0.20	0.11
518	2.5	0.05	----	0.13	0.10	0.18	0.17	0.21	0.25	0.15	0.06
648	1.0	0.10	0.05	0.10	0.05	0.17	----	0.11	0.25	0.11	0.07
	6.0	0.05	0.05	0.07	0.30	0.18	----	0.10	0.18	0.13	0.09
810	1.0	0.07	0.05	0.19	0.14	0.16	----	0.25	0.21	0.15	0.07
	7.0	0.07	0.11	0.13	0.29	0.16	----	0.27	0.20	0.17	0.08
994	1.0	0.05	0.05	0.11	0.05	0.23	----	0.20	0.15	0.12	0.07
	6.0	0.05	0.09	0.13	----	0.25	----	0.17	0.25	0.15	0.08
1008	3.0	0.08	0.10	0.25	0.23	0.15	----	----	----	0.16	0.07
1016	1.0	0.10	0.06	0.10	0.06	0.06	----	0.13	0.16	0.09	0.03
	9.0	0.13	0.07	0.32	0.32	0.08	----	0.14	0.17	0.17	0.10
1040	3.0	0.08	0.09	0.18	0.10	0.13	----	0.19	0.24	0.14	0.06
1041	1.0	----	----	0.16	0.19	0.13	----	0.21	0.30	0.19	0.06
	8.0	----	0.14	0.19	0.09	0.19	----	0.37	0.53	0.25	0.16
1042	2.5	----	0.05	0.32	0.08	0.25	----	0.41	1.30	0.40	0.46
Mean	Surface	0.10	0.05	0.11	0.08	0.24	----	0.17	0.23		
	Bottom	0.10	0.09	0.18	0.19	0.21	----	0.18	0.27		
Std. Dev.	Surface	0.051	0.004	0.050	0.057	0.184	----	0.053	0.062		
	Bottom	0.049	0.032	0.091	0.128	0.102	----	0.098	0.124		

APPENDIX I, Table 13, Chloride (mg/l), Nanticoke, 1975

Station	Depth-m	Apr 29	May 28	Jul 9	Aug 7	Aug 20	Sep 17	Oct 22	Nov 19	Mean	Std. Dev.
112	1.0	22.0	23.0	22.5	23.0	22.0	22.0	21.5	21.5	22.2	0.59
	11.0	22.0	23.0	22.5	23.0	22.0	22.0	21.5	21.5	22.2	0.59
501	1.0	22.0	23.0	22.5	23.0	22.0	22.0	21.5	21.5	22.2	0.59
	11.0	21.0	23.0	22.5	23.0	22.0	22.0	21.5	21.5	22.1	0.72
518	2.5	22.0	23.0	23.0	23.0	22.0	22.0	21.5	21.5	22.3	0.65
648	1.0	22.0	23.0	23.0	23.0	22.0	22.0	21.5	21.5	22.3	0.65
	6.0	22.0	23.0	23.0	23.0	22.0	22.0	21.5	21.5	22.3	0.65
810	1.0	22.0	23.0	23.0	23.0	22.0	22.0	21.5	21.5	22.3	0.65
	7.0	22.0	23.0	23.0	23.0	22.0	21.0	21.5	22.0	22.2	0.75
994	1.0	22.0	23.0	22.5	23.0	22.0	22.0	21.5	22.0	22.3	0.53
	6.0	22.0	23.0	22.5	23.0	22.0	22.0	21.5	21.5	22.2	0.59
1008	3.0	22.0	23.0	22.5	23.0	22.0	----	----	----	22.5	0.50
1016	1.0	22.0	23.0	23.0	23.0	22.0	21.0	21.5	22.0	22.1	0.74
	9.0	22.0	23.0	23.0	23.0	22.0	21.0	21.5	22.0	22.2	0.75
1040	3.0	22.0	23.0	23.0	23.0	22.0	21.0	21.5	21.5	22.1	0.79
1041	1.0	----	23.0	22.5	23.0	22.0	21.0	21.5	21.5	22.1	0.78
	8.0	----	22.5	22.5	23.0	22.0	21.0	21.5	21.5	22.0	0.70
1042	2.5	----	23.0	22.5	23.0	22.0	21.0	21.5	21.5	22.1	0.78
Mean	Surface	22.0	23.0	22.7	23.0	22.0	21.7	21.5	21.6		
	Bottom	21.8	22.9	22.7	23.0	22.0	21.6	21.5	21.6		
Std. Dev.	Surface	0.00	0.00	0.26	0.00	0.00	0.48	0.00	0.24		
	Bottom	0.41	0.23	0.26	0.00	0.00	0.53	0.00	0.24		

APPENDIX I, Table 14, Phenols ($\mu\text{g/l}$), Nanticoke 1975

Station	Depth-m	Apr 29	May 28	Jul 9	Aug 7	Aug 20	Sep 17	Oct 22	Nov 19	Mean	Std. Dev.
112	1.0	---	1.0	1.0	3.0	1.0	1.0	1.0	1.0	1.3	0.75
	11.0	---	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.00
501	1.0	---	1.0	2.0	1.0	1.0	1.0	1.0	1.0	1.1	0.37
	11.0	---	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.00
518	2.5		1.0	1.0	2.0	1.0	1.0	1.0	1.0	1.1	0.37
648	1.0	---	1.0	1.0	3.0	1.0	1.0	1.0	1.0	1.3	0.75
	6.0	---	4.0	1.0	1.0	2.0	1.0	1.0	1.0	1.6	1.13
810	1.0	---	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.00
	7.0	---	1.0	1.0	1.0	5.0	1.0	1.0	1.0	1.6	1.51
994	1.0	---	1.0	3.0	1.0	1.0	1.0	1.0	1.0	1.3	0.75
	6.0	---	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.00
1008	3.0	---	1.0	1.0	---	1.0	---	---	---	1.0	0.00
1016	1.0	---	3.0	1.0	1.0	1.0	1.0	1.0	1.0	1.3	0.75
	9.0	---	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.00
1040	3.0	---	1.0	2.0	4.0	3.0	1.0	1.0	1.0	1.9	1.21
1041	1.0	---	---	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.00
	8.0	---	1.0	1.0	3.0	1.0	1.0	1.0	1.0	1.3	0.75
1042	2.5		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.00
Mean	Surface	---	1.3	1.4	1.6	1.0	1.0	1.0	1.0		
	Bottom	---	1.4	1.0	1.3	1.7	1.0	1.0	1.0		
Std. Dev.	Surface	---	0.82	0.78	0.97	0.00	0.00	0.00	0.00		
	Bottom	---	1.06	0.00	0.75	1.49	0.00	0.00	0.00		

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APPENDIX I, Table 16, Total Lead (mg/l), Nanticoke 1975

Station	Depth-m	Apr 29	May 28	Jul 9	Aug 7	Aug 20	Sep 17	Oct 22	Nov 19	Mean	Std. Dev.
112	1.0	----	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.000
	11.0	----	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.000
501	1.0	----	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.000
	11.0	----	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.000
518	2.5	----	0.01	0.01	0.01	0.03	----	0.01	0.01	0.01	0.008
648	1.0	----	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.000
	6.0	----	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.000
810	1.0	----	----	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.000
	7.0	----	----	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.000
994	1.0	----	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.004
	6.0	----	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.004
1008	3.0	----	0.01	0.01	0.01	0.01	----	----	----	0.01	0.000
1016	1.0	----	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.000
	9.0	----	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.000
1040	3.0	----	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.000
1041	1.0	----	----	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.000
	8.0	----	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.004
1042	2.5	----	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.000
Mean	Surface	----	0.01	0.01	0.01	0.01	0.01	0.01	0.01		
	Bottom	----	0.01	0.01	0.01	0.01	0.01	0.01	0.01		
Std. Dev.	Surface	----	0.000	0.003	0.000	0.000	0.000	0.000	0.000		
	Bottom	----	0.000	0.003	0.000	0.000	0.000	0.000	0.003		

APPENDIX I, Table 17, Total Copper (mg/l), Nanticoke 1975

Station	Depth-m	Apr 29	May 28	Jul 9	Aug 7	Aug 20	Sep 17	Oct 22	Nov 19	Mean	Std. Dev.
112	1.0	----	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.000
	11.0	----	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.003
501	1.0	----	0.04	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.011
	11.0	----	0.01	0.01	0.02	0.02	0.01	0.01	0.02	0.01	0.005
518	2.5	----	0.09	0.01	0.03	0.03	----	0.01	0.01	0.03	0.030
648	1.0	----	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.003
	6.0	----	0.02	0.01	0.02	0.01	0.01	0.01	0.03	0.02	0.007
810	1.0	----	----	0.01	0.01	0.05	0.01	0.01	0.01	0.02	0.016
	7.0	----	----	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.004
994	1.0	----	0.01	0.01	0.01	0.08	0.08	0.01	0.01	0.03	0.034
	6.0	----	0.06	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.018
1008	3.0	----	0.02	0.01	0.01	0.05	----	----	----	0.02	0.018
1016	1.0	----	0.01	0.01	0.01	0.01	0.03	0.01	0.01	0.01	0.007
	9.0	----	0.01	0.01	0.01	0.08	0.02	0.01	0.01	0.02	0.026
1040	3.0	----	0.01	0.01	0.01	0.04	0.01	0.01	0.02	0.02	0.011
1041	1.0	----	----	0.01	0.01	0.03	0.07	0.01	0.01	0.02	0.024
	8.0	----	0.03	0.01	0.01	0.06	0.12	0.01	0.02	0.03	0.047
1042	2.5	----	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.003
Mean	Surface		0.01	0.01	0.01	0.02	0.03	0.01	0.01		
	Bottom		0.03	0.01	0.01	0.03	0.03	0.01	0.02		
Std. Dev.	Surface		0.013	0.000	0.000	0.020	0.030	0.000	0.000		
	Bottom		0.018	0.000	0.005	0.028	0.041	0.000	0.028		

APPENDIX I, Table 18, Total Nickel (mg/l), Nanticoke 1975

Station	Depth-m	Apr 29	May 28	Jul 9	Aug 7	Aug 20	Sep 17	Oct 22	Nov 19	Mean	Std. Dev.
112	1.0	----	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.004
	11.0	----	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.004
501	1.0	----	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.004
	11.0	----	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.004
518	2.5	----	0.02	0.02	0.09	0.04	0.02	0.01	0.01	0.03	0.028
648	1.0	----	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.004
	6.0	----	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.004
810	1.0	----	----	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.005
	7.0	----	----	0.02	0.05	0.05	0.02	0.01	0.01	0.03	0.018
994	1.0	----	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.004
	6.0	----	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.004
1008	3.0	----	0.02	0.02	0.02	0.03	----	----	----	0.02	0.005
1016	1.0	----	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.004
	9.0	----	0.02	0.02	0.02	0.08	0.02	0.01	0.01	0.03	0.024
1040	3.0	----	0.02	0.02	0.02	0.04	0.02	0.01	0.01	0.02	0.010
1041	1.0	----	----	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.005
	8.0	----	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.004
1042	2.5	----	0.02	0.02	0.04	0.02	0.02	0.04	0.01	0.02	0.011
Mean	Surface	----	0.02	0.02	0.02	0.02	0.02	0.01	0.01		
	Bottom	----	0.02	0.02	0.02	0.03	0.02	0.01	0.01		
Std. Dev.	Surface	----	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
	Bottom	----	0.000	0.000	0.011	0.024	0.000	0.000	0.000		

APPENDIX I, Table 19, Total Zinc (mg/l), Nanticoke 1975

Station	Depth-m	Apr 29	May 28	Jul 9	Aug 7	Aug 20	Sep 17	Oct 22	Nov 19	Mean	Std. Dev.
112	1.0	----	0.01	0.01	0.06	0.01	0.01	0.01	0.01	0.02	0.018
	11.0	----	0.02	0.01	0.08	0.01	0.01	0.01	0.02	0.02	0.025
501	1.0	----	0.01	0.01	0.04	0.01	0.01	0.01	0.01	0.01	0.010
	11.0	----	0.02	0.01	0.07	0.01	0.01	0.01	0.03	0.02	0.022
518	2.5	----	0.02	0.01	0.05	0.02	0.06	0.01	0.03	0.03	0.019
648	1.0	----	0.01	0.01	0.05	0.01	0.01	0.01	0.01	0.02	0.015
	6.0	----	0.02	0.01	0.05	0.01	0.01	0.01	0.04	0.02	0.016
810	1.0	----	----	0.01	0.06	0.01	0.01	0.01	0.09	0.03	0.034
	7.0	----	----	0.01	0.07	0.01	0.01	0.01	0.03	0.02	0.024
994	1.0	----	0.01	0.01	0.05	0.01	0.01	0.01	0.01	0.02	0.015
	6.0	----	0.05	0.01	0.04	0.01	0.01	0.01	0.03	0.02	0.017
1008	3.0	----	0.02	0.02	0.05	0.01	----	----	----	0.03	0.017
1016	1.0	----	0.01	0.01	0.10	0.01	0.01	0.01	0.02	0.02	0.033
	9.0	----	0.02	0.01	0.09	0.02	0.01	0.01	0.01	0.02	0.022
1040	3.0	----	0.02	0.01	0.07	0.01	0.01	0.01	0.04	0.02	0.022
1041	1.0	----	----	0.03	0.06	0.01	0.01	0.01	0.02	0.02	0.019
	8.0	----	0.04	0.02	0.06	0.01	0.01	0.01	0.04	0.03	0.019
1042	2.5	----	0.01	0.04	0.07	0.01	0.01	0.01	0.04	0.03	0.023
Mean	Surface	----	0.01	0.01	0.06	0.01	0.01	0.01	0.02		
	Bottom	----	0.03	0.01	0.07	0.01	0.01	0.01	0.03		
Std. Dev.	Surface	----	0.000	0.007	0.019	0.000	0.000	0.000	0.029		
	Bottom	----	0.013	0.003	0.017	0.003	0.000	0.000	0.006		

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